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$$A = 3i + 4j - 6k$$

$$B = 5i - 11j + 2k$$

$$C = 7i - 7j + k$$

1) $A \cdot C + B \cdot C$

$$\underline{A \cdot C} = (3 \times 7) + (4 \times -7) + (6 \times 1)$$

$$= 21 - 28 + 6$$

$$= -1$$

$$\underline{B \cdot C} = (5 \times 7) + (-11 \times -7) + (2 \times 1)$$

$$= 35 + 77 + 2$$

$$= 114$$

$$A \cdot C + B \cdot C = 114 - 1$$

$$= 113$$

2) $(A - B) \cdot C$

$$\underline{A - B} = (3i + 4j - 6k) - (5i - 11j + 2k)$$

$$= 3i + 4j - 6k - 5i + 11j - 2k$$

$$= -2i + 15j - 8k$$

$$\underline{(A - B) \cdot C} = (-2i + 15j - 8k) \cdot (7i - 7j + k)$$

$$= (-2 \times 7) + (15 \times -7) + (-8 \times 1)$$

$$= -14 - 105 - 8$$

$$= -127$$

3) $A \cdot (B \times C)$

$B \times C$	i	j	k
	5	-11	2
	7	-7	1

$$= i \begin{vmatrix} -11 & 2 \\ -7 & 1 \end{vmatrix} - 5 \begin{vmatrix} 5 & 2 \\ 7 & 1 \end{vmatrix} + k \begin{vmatrix} 5 & -11 \\ 7 & -7 \end{vmatrix}$$

$$= 2(-11 + 14) - j(5 - 14) + k(-35 + 77)$$

$$= 3i + 9j + 38k$$

